PUBLIC NOTICE

US Army Corps of Engineers®
Albuquerque District

Permit Application No.:	SPA-2008-00263-ABQ
Project Name:	Isleta Reach Habitat Restoration Project
Applicant:	New Mexico Interstate Stream Commission
Waterway:	Rio Grande
Public Notice Date:	December 24, 2008
Comment Due Date:	January 13, 2009
CE Contact Phone:	(505) 342-3284

Reply To:

Regulatory Division
US Army Corps of Engineers, Albuquerque District
4101 Jefferson Plaza, NE
Albuquerque, NM 87109-3435

PERMIT APPLICATION UNDER SECTION 404 OF THE CLEAN WATER ACT (33 USC 1344)

Summary of Proposed Project: We are requesting public comment on the following project before the above comment due date. The application is for a permit to place/discharge dredged and/or fill material as Isleta Reach Habitat Restoration Project in the Rio Grande and adjacent wetlands near Belen, Valencia County, New Mexico. The proposed project will evaluate 8 techniques to improve the riverine habitat of the Rio Grande silvery minnow including in-channel passive restoration, removal of in-channel lateral confinements (e.g., jetty jack removal), vegetated island modification and evaluation, high-flow ephemeral channels, large woody debris piles construction, terracing and bank lowering, and mid- to high-flow riverbank backwater channel, historic diversion channel enhancement and restoration, and high-flow bankline backwater channels and embayments construction. Approximately 44 acres of waters of the U.S. will be filled with earthen fill materials, including 26.3 acres of jurisdictional wetlands. Details of the proposed project are provided below.

Name of Applicant: Estevan Lopez, New Mexico Interstate Stream Commission, PO Box 25102, Santa Fe, NM 87504-5102; Phone: (505) 827-6160.

Name of Agent: Brian J. Bader, SWCA Environmental Consultants, 5647 Jefferson St. NE, Albuquerque, NM 87109; Phone: (505) 254-1115.

Location: The project is located within the Peralta Subreach (34° 40.5' N Latitude,106° 44.7' W Longitude) and the LP1DR Subreach (34° 38.5' N Latitude, 106° 44.3' W Longitude) of the Isleta Reach of the Rio Grande near Belen, Valencia County, New Mexico. The Peralta Subreach, extending from the Peralta wasteway outfall (RM 152.5) to the Lower Peralta #1 Riverside Drain (LP1DR) wasteway outfall (RM 149.6), and the LP1DR Subreach, extending

from the LP1DR wasteway outfall (RM 149.6) to the Belen Riverside Drain outfall (RM 147.7). See Sheets 1, 2 and 3 of 9.

Description of Work: To modify approximately 44 acres of islands and riverbank to create slackwater mesohabitat features to increase potential spawning, larval fish habitats, and refugial pools within the Peralta and LP1DR subreaches of the Isleta Reach. Additionally, the creation of the bosque inundation channel within the LP1DR Subreach will be designed to increase the frequency of inundation of historic floodplains. The project will implement active bosque inundation on approximately 12 acres (5 hectares) within the floodplain of the LP1DR Subreach. Treatments include the 1) excavation of backwaters and embayments, bankline benches, highflow ephemeral channels, shelves and other island/bar modifications; 2) placement of large woody debris within the river channel; 3) removal of lateral confinements (e.g., jetty jacks); 4) floodplain vegetation management; and 5) excavation of bosque (overbank) inundation channel. Each active restoration method presented involves the physical manipulation of a predetermined portion of the surface area of selected features with an amphibious excavator or land-based equipment, such as a dozer, a belly scraper, an excavator, or a backhoe. See Sheet 4 of 9 (Table 2) for a list of all proposed activities and fill areas.

The NMISC proposes to create new low-elevation habitat adjacent to the islands and bank attached bars within the river channel through re-distributing accumulated sediments and woody debris excavated during the creations of habitat features. Sediments and woody debris would be placed within silt barriers installed 2 feet (0.6 m) from the wetted perimeter of the bank of islands and bank-attached bars to prevent any sediment from falling into the channel (see Sheet 6 for schematic design). Sediment spoils on bankline features will be spread evenly over the land surface to an uncompacted depth ranging from 0.5 feet (0.15 m) to 1.5 feet (0.45 m) and planted with native grasses and forbs.

Excavation of the bosque inundation channel utilizes existing abandoned high flow channels to minimize the amount of excavation and generation of sediment spoils. Sediment spoils resulting from the excavation of the bosque inundation channel and backwater will be spread evenly adjacent to the work area. Wetland fill will be minimized through distributing spoils in non-wetland areas or on top of adjacent wing-dikes and the levee.

Backwaters and Embayments: The creation of moderate- to high-flow backwater and embayment areas would involve the removal of riverbank and island vegetation and the excavation of soils to prescribed depths. The proposed treatment will be constructed at nine locations within the Peralta Subreach and four locations within the LP1DR Subreach. Backwater areas (e.g., no upstream inlet) would be constructed on the downstream end of large point bars, which are already low-velocity areas, at a range of elevations. This allows for inundation at a range of river flows. Backwater areas would slope slightly, with the downstream end lower in elevation than the upstream end, increasing the amount of habitat opportunities at a range of river flows and avoiding possible silvery minnow entrapment. Backwaters can also be terraced to create a range of distinct target inundation discharges.

This treatment is being used to increase the amount of shallow, low-velocity habitat available during spring snow-pack runoff events. The creation of backwaters and embayments are intended to support spawning, retain drifting silvery minnow eggs, and provide habitat for developing silvery minnow larvae. See Sheet 5 of 9. Total fill area for the proposed treatment will be approximately 5.8 acres (See Sheet 4 of 9).

Bankline Benches: The creation of bankline benches involves lowering the bank by the removal of bankline vegetation and through the excavation of soils to increase the potential for overbank flooding. Six locations within the Peralta Subreach and four locations within the LP1DR Subreach will be used for this treatement. Bankline benches would be created in areas where the removal of the naturally formed levees that often exist along the banks could increase inundation in the overbank areas.

Bankline benches would be inundated during different stages of moderate to high flows and would increase the frequency and duration of inundation. However, the overbank areas would not remain flooded for significant periods of time and would not be intended to provide mesohabitat for adult silvery minnows. Conversely, bankline benches are expected to provide additional low-velocity habitat, resulting in improved egg retention and larval fish development during periods of high river flow. See Sheet 6 of 9. Total fill area for the proposed treatment will be approximately 3.48 acres (See Sheet 4 of 9).

Highflow Ephemeral Channels: Ephemeral channels are low-velocity, flow-through channels that are connected to the main river channel across bars and islands. These channels are normally dry but carry high-discharge flow from the main channel during spring snowmelt and summer monsoon events. The channels carry water at lower velocities than the main channel and may include mesohabitats such as pools and backwaters with little to no flow. The channels would be cut through islands, banks, and bars to a depth that would allow water to flow at moderate to high river flows. The design of the ephemeral channels would consider the river channel geometry, the resulting velocity profiles, and distribution and subsequent water retention times. An ephemeral channel will be constructed at one location within the Peralta Subreach and two locations within the LP1DR Subreach.

Ephemeral channels create aquatic habitat beneficial to the silvery minnow. The target inundation elevations and duration would accommodate flows to encourage silvery minnow recruitment each year. Ephemeral channels could provide sufficient periods of inundation for larval development and refugia for young silvery minnow depending on target elevations and individual runoff characteristics. These side channels would dry during lower flows and would not be designed to provide habitat for adult silvery minnow. See Sheet 7 of 9. Total fill area for the proposed treatment will be approximately 0.58 acre (See Sheet 4 of 9).

Island Modification: Shelves and Island/Bar Modifications: This island modification technique will be targeted to those features that are infrequently inundated, are stabilized by vegetation, or otherwise are armoring and thus are resistant to sediment mobilization. The creation of shelves on three islands and bars within the Peralta Subreach will increase inundation frequency. The treatment will not be used within the LP1DR Subreach. This technique is targeted for islands and bars that have an overtopping discharge greater than 3,500 cfs and exceedance days per year less than 21 days. Modifying these features will assist in alleviating adverse changes to silvery minnow critical habitat and improving the quality and quantity of available habitat. Islands can be modified by removing vegetation and destabilizing soil and sediment, mowing vegetation, root-plowing vegetation and sediment, and raking vegetation and surface sediment, or through creating shelves that are inundated at a lower discharge. Island modification should result in re-establishing channel function, through increasing the frequency and duration of inundation and increasing the redeposition of sediment, all of which should result in enhanced silvery minnow habitat. Treated islands would be allowed to naturally expand or contract in response to flows and available sediment

load. Island modification would also increase the potential for redeposition of sediment in downstream subreaches of the Rio Grande. Sediments removed as a result of the modification will be placed in the river behind silt fences. See Sheet 8 of 9. Total fill area for the proposed island treatment will be approximately 0.9 acre (See Sheet 4 of 9).

Large Woody Debris (LWD) Piles: The placement of LWD is a technique that involves setting root wads, trees, and large branches in the main river channel or near the banks to create diverse aquatic habitats. LWD will be unanchored and placed on or near the riverbank or on islands and bars likely to be transported as flows increase. LWD may be placed in high-density, location-specific areas associated with backwaters and embayments to create scour flows, which could help prevent sedimentation on these features and increase project longevity. The NMISC is coordinating with the Middle Rio Grande Conservancy District (MRGCD) to obtain large cottonwoods that were killed as a result of the Belen fire. See Sheet 9 of 9.

Removal of Lateral Confinements: Lateral constraints, such as jetty jacks and the densely vegetated natural levees that form around them, decrease the potential for lateral migration of the channel and natural bank erosion processes, ultimately creating a narrower, more linear, and deeper river channel. Removal of jetty jacks will allow for the subsequent removal of the associated natural levees, thus increasing the connectivity between the river channel and floodplain which may allow for natural river processes to create wider and more diverse channel and floodplain features, yielding increased low-velocity habitat for all life stages of the silvery minnow. Removal of bankline jetty jacks running parallel to the channel are proposed in select locations associated with the creation of bankline benches and embayments cut into the bank and adjacent floodplain (see Sheets 2 and 3 of 9 for locations where jetty jacks would be removed). Jetty jack removal is proposed only in areas where levees would not be put at risk or where river control activities would not be affected. Tie-back jetty jacks or those that run perpendicular to the river channel are not proposed for removal as part of the project. The bankline jetty jacks would be removed by an amphibious excavator and placed on the adjacent floodplain or bosque, then appropriately removed from the bosque shortly thereafter via designated access routes. Remaining jetty jacks would be tied together with cable looped through the end jetty jacks and secured with cable clamps. Approval from the USACE, the U.S. Bureau of Reclamation (Reclamation), and the MRGCD will be obtained prior to removal of jetty jacks.

Floodplain Vegetation Management: The NMISC is collaborating with the MRGCD, who have developed a site restoration design for the post-burn riparian site of approximately 100 acres adjacent to the former Willie Chavez State Park within the LP1DR Subreach. The project will incorporate ecologically based passive and active restoration techniques to create a more resilient, sustainable, and fire-resistant landscape. The goal is for native trees, shrubs, and herbaceous vegetation to cover 80% of the site in a patchwork mosaic of differing ages and sizes to increase overall habitat diversity and availability for wildlife, including endangered and sensitive species, such as the Southwestern Willow Flycatcher**.** Proposed activities include active revegetation, management and control of non-native species, preservation of mature native trees and dead snags, and the creation and maintenance of fuel breaks. All vegetative treatments and plantings will be performed in the dry. Active revegetation involves planting species representative of riparian gallery forests in the Middle Rio Grance. Dominant species include cottonwood (*Populus* sp.), Goodding's willow, and coyote willow . A number of riparian shrubs, such as New Mexico olive, skunkbush sumac, false indigobush, and

seepwillow, may be planted to increase diversity. Ground layer plantings may be focused on restoring and enhancing existing wetlands. See Sheet 3 of 9 for site locations.

Excavation of Bosque Inundation Channels: The goals of the bosque inundation technique are to maintain or restore the hydrologic connectivity of the floodplain to the river and provide additional low-flow habitat for the silvery minnow during peak runoff events associated with the spring runoff pulse. Based on the 25-day exceedance goal, the target discharge is 3,000 to 3,500 cfs. Inundation will be achieved through creating an inlet channel that will be cut through the natural bankline levee, directing water into the floodplain. Abandoned flow channels and other paths of least resistance located in the floodplain will be utilized in bringing the water to the desired location. The inundation channel will be graded to direct the flow of water away from the levee and to minimize entrapment of silvery minnow. A backwater in the Willie Chavez site within the LP1DR Subreach will be graded from the river channel to the inundation channel and serve as the desired location for bosque inundation. The backwater is intended to drain the area and minimize silvery minnow entrapment and to serve as slackwater habitat. A total of approximately 26.3 acres may be filled with excavated earthern materials (See Sheet 4 of 9).

The total area of fills in waters of the U.S. is **44** acres. Up to 26.3 acres (10.6 hectares) of wetlands may be filled to a depth of 0.5 feet (0.15 m) resulting from the excavation of the bosque inundation channel and backwater in the floodplain (See Sheet 4 of 9). Note that the area of wetland fill may be reduced through disposing of sediment spoil through depositing spoils in non-wetland areas and on top of existing wing-dikes and the adjacent levee.

Sediment discharges into jurisdictional waters are: Peralta Subreach – approximately 82,798 cubic yards and LP1DR Subreach – approximately 29,720 cubic yards. Discharges into jurisdictional wetlands include: Bosque Inundation (overbank) – approximately 21,223 cubic yards. See Sheet 4 of 9 (i.e., Table 2) which summarizes the jurisdictional fill areas. Work is expected to begin in January 2009 and be completed in April 2009.

Purpose and Need: The stated purpose of the project, funded through the Middle Rio Grande Endangered Species Act Collaborative Program, is intended to restore habitat for the federally listed Rio Grande silvery minnow. NMISC's habitat restoration goals for the Isleta Reach include 1) diversifying mesohabitat types, focusing on spawning, egg retention, larval fish, and young-of-year habitat; 2) creating refugial habitat for silvery minnow during prolonged dewatering/no-flow periods in locations that are adjacent to perennial water sources; 3) designing strategic inundation of disconnected bosque habitat to encourage and increase the extent of overbank inundation; and 4) encouraging fluvial processes and river dynamics. The project will help satisfy federal requirements for habitat restoration that will improve survival of all life stages of the silvery minnow, as specified in Reasonable and Prudent Alternative Element S of the 2003 Biological Opinion (USFWS 2003).

Related Work: To prevent the mixing of sediments with surface pools and runoff in each of the subreaches, access paths that minimize travel distances in wetted pools or flowing water will be predetermined. Before crossing the wetted portion of the diversion channels, water-quality parameters will be measured, and temporary silt fencing will be placed downstream of the crossing to minimize sediment disturbance. The fencing will be removed after suspended sediments have settled out and water-quality parameters have returned to within 10 percent

of the ambient condition or parameters outlined by the New Mexico Environment Dept. The amphibious excavator will access the river using previously disturbed areas.

Mitigation: Avoidance measures considered to reduce or eliminate the quantity of fill material include hauling fill off-site. It is cost-prohibitive to haul and land-fill excess sediments. Furthermore, the sediment balance in the Rio Grande has been disrupted with the closure of Cochiti Dam. It is preferable to redistribute accumulated sediments to the active river channel in order to promote a functioning, dynamic ecosystem. Despite these drawbacks, the NMISC is seeking a contractor to haul the fill material off-site at no cost to the NMISC. This option does have drawbacks, which include the need for temporary storage, logistical concerns, and potential for increased costs and increased impacts on access and staging areas due to increased equipment travel.

There is no way to completely avoid excavating delineated riparian wetlands. Given the change in river management and hydrological conditions, it is necessary to excavate a number of sites to create additional habitat for the silvery minnow. Restoration site selection was guided on the geomorphic characteristics of the river and the habitat needs for the silvery minnow.

Several minimization measures were incorporated into the project during the planning process. First, existing topographic features were targeted. In-channel restoration sites were selected utilizing current geomorphic features that will provide ecosystem benefit beyond the excavation footprint. The bosque inundation channel utilizes existing abandoned high flow channels in the floodplain. Second, targeting a range of inundation discharge elevations allows for increasing the frequency of inundation while minimizing the volume of material to be excavated. Third, excess sediments may be spread over areas that are not delineated wetlands, including adjacent bosque, on top of existing wing dikes or adjacent to the levee. Finally, best management practices (BMPs) will be followed to minimize uncontrolled discharge of sediments into the waters of the United States. The BMPs, to be spelled out in a Storm Water Pollution Prevention Plan (SWPPP) to be prepared by the NMISC's construction contractor, include using silt curtains to minimize potential increases in turbidity in the river during and immediately following construction-related activities and on-site monitoring during construction.

Minimization measures were implemented during the planning process to minimize the extent of temporal loss to wetlands through relocating or redesigning the configuration of the proposed restoration sites.

In consultation with the U.S. Army Corps of Engineers (USACE), the NMISC will prepare a compensatory mitigation plan to mitigate the effects of sediment deposition on delineated wetlands within the floodplain (e.g., Willie Chavez site). The potential impacts include colonization by weedy, non-native species (e.g., Russian thistle, kochia [*Kochia* sp.]) and reducing the frequency and extent of inundation. The compensatory mitigation plan would address 1) species selection, 2) plant materials, 3) planting methods, and 4) planting time frame. The compensatory mitigation plan may also address construction oversight necessary to avoid deposition of fill in excess of specified amounts.

The NMISC is collaborating with the MRGCD, who have developed a site restoration design for the post-burn riparian site of approximately 100 acres adjacent to the former Willie

Chavez State Park. The MRGCD proposes to restore native riparian gallery forests, including ground layer plantings focusing on restoring and enhancing existing wetlands. The NMISC proposes to incorporate these plantings into the compensatory mitigation plan for the Willie Chavez site. Long-term monitoring may be conducted at a subset of sites and selected reference sites within the Isleta Reach.

Plans and Data: Drawings showing the location of the work site and other data are enclosed with this notice. If additional information is desired, it may be obtained from the applicant, or from:

William M. Oberle
Regulatory Division
Albuquerque District, Corps of Engineers
4101 Jefferson Plaza, NE
Albuquerque, NM 87109-3435
(505) 342-3284
Fax No. 505-342-3498

Statement of Findings: The Bureau of Reclamation, in association with the New Mexico Interstate Stream Commission, has consulted the National Register of Historic Places. Eleven archaeological sites listed in the Register were identified in the course of 19 previous cultural surveys are present within the 3,281 feet of the boundaries of the Peralta and LP1DR Subreaches. Consultation with the New Mexico State Historic Preservation Office (NMSHPO) has result in concurrence from the NM State Historic Preservation Office that the proposed project will have no adverse effect on significant cultural resources. This constitutes the extent of cultural resource investigations for the proposed project. It is possible, however, that presently unknown archeological, scientific, prehistoric, or historic data may be inadvertently lost or destroyed by the work accomplished under the requested permit. In the event that cultural resources are found, the NMSHPO will be contacted for advice on the appropriate action to be taken.

The following is a list of endangered (E) and threatened (T) species and/or critical habitat (CH) for Valencia County, New Mexico:

Black-footed ferret	Mustela nigripes - E, EXPN
Mexican spotted owl	Strix occidentalis lucida – T
Pecos sunflower	Helianthus paradoxus - T
Rio Grande silvery minnow	Hybognathus amarus - E
Southwestern willow flycatcher	Empidonax traillii extimus - E

Our preliminary review indicates this project may temporarily effect but not adversely effect the critical habitats of the Rio Grande silvery minnow and the Southwest willow flycatcher. However, the purpose of the project is to restore the critical habitats of the RGSM and the Southwestern willow flycatcher and the long-term effects will be beneficial. The Bureau of Reclamation (USBR) on behalf of the NMISC has initiated consultation with the U.S. Fish and Wildlife Service (USFWS). A Biological Assessment was submitted to the USFWS on November 30, 2008. Threatened and Endangered Species Consultation was in tiated with the USFWS on October 2, 2008 by the NMISC and the USBR.

The applicant has applied to the New Mexico Environment Department for certification that this work is in compliance with applicable State water quality standards. The applicant is responsible for obtaining all other required Federal, state, and local authorizations for this work.

In accordance with environmental procedures and documentation required by the National Environmental Policy Act of 1969, an environmental assessment will be prepared for this project. Upon completion, the assessment may be seen at the U.S. Army Corps of Engineers, Albuquerque District Office at the address given above.

Comment: Any comments concerning this project should be received by the District Engineer no later than **January 13, 2009**. Comments received after the end of the Public Notice comment period will not be considered. However, more time may be given if a request, with a valid reason, is received prior to the suspense date. The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed below. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. The evaluation of the impact of this activity will include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Clean Water Act. All factors relevant to the proposal and the cumulative effects will be considered; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

At the request of the Department of Public Safety, Emergency Management Preparedness, State Coordinator, we are sending a copy of this notice to the local flood plain administrator to apprise the administrator of proposed development within their jurisdiction. In accordance with 44 CFR Part 60 (Flood Plain Management Regulations Criteria for Land Management and Use), participating communities are required to review all proposed development to determine if a flood plain development permit is required. The local Flood Plain Administrator is required to perform this review for all proposed development and maintain records of such review. You may contact:

Department of Public Safety
State Floodplain Coordinator

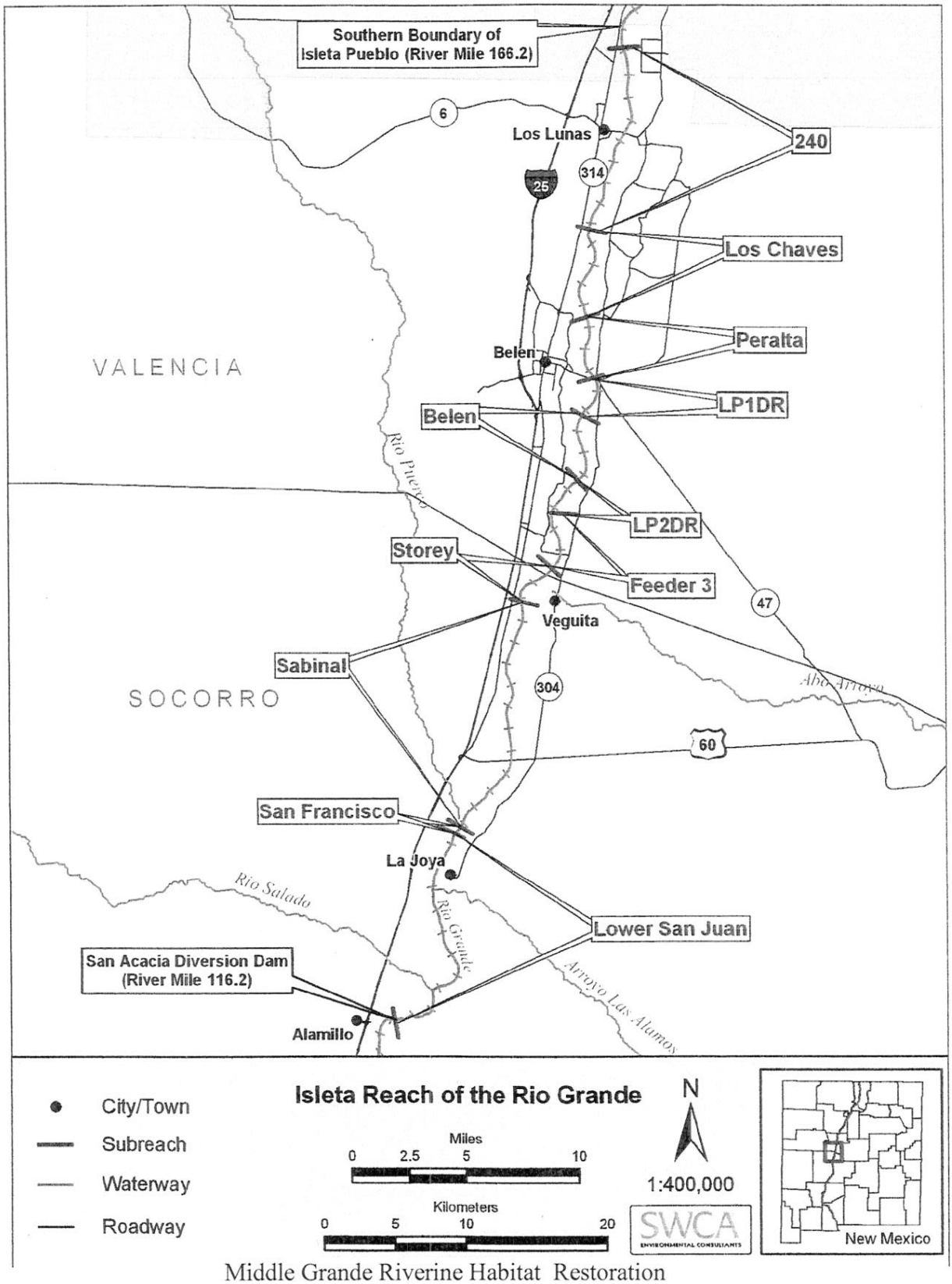
Attn: Mr. Bill Borthwick
email: wborthwick@dps.state.nm.us
Phone: 505-476-9617

If the District Engineer determines that the project complies with the 404(b)(1) guidelines, he will grant the permit unless issuance would be contrary to the public interest.

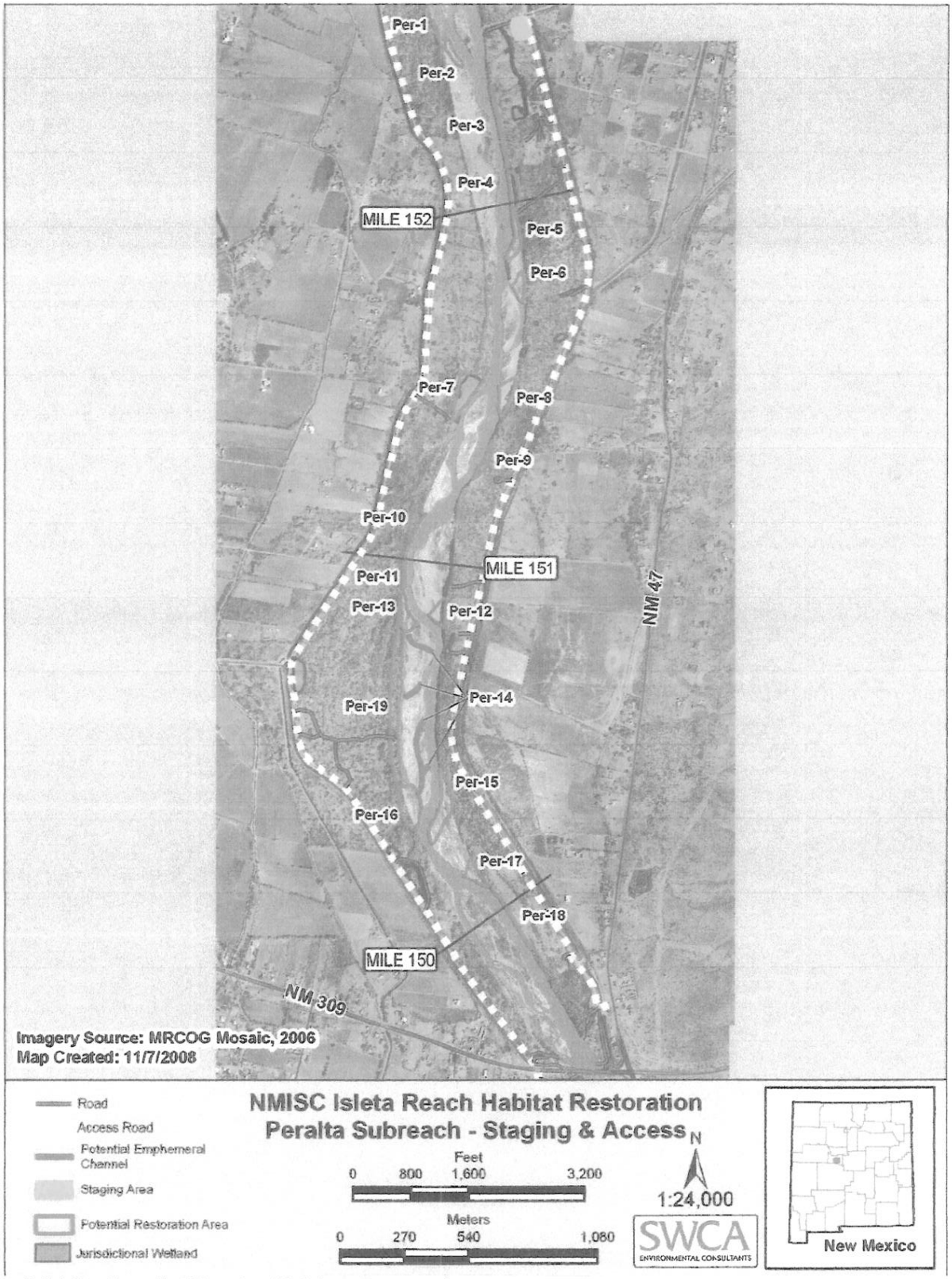
Any person may request a public hearing. The request must be submitted, in writing, to the District Engineer within 21 days of the date of this notice and must clearly set forth the reasons for holding a public hearing.

Kimberly M. Colloton
Lieutenant Colonel, U.S. Army
District Commander

Enclosure



Middle Grande Riverine Habitat Restoration Project, Isleta Reach, near Belen, Valencia County, New Mexico
Application No. SPA-2008-00263-ABQ
Application by New Mexico Interstate Stream Commission
Sheet 1 of 9 December 2008



Middle Grande Riverine Habitat Restoration
Project, Isleta Reach, near Belen, Valencia County, New Mexico
Application No. SPA-2008-00263-ABQ
Application by New Mexico Interstate Stream Commission
Sheet 2 of 9

December 2008

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Middle Grande Riverine Habitat Restoration
Project, Isleta Reach, near Belen, Valencia County, New Mexico
Application No. SPA-2008-00263-ABQ
Application by New Mexico Interstate Stream Commission
Sheet 3 of 9

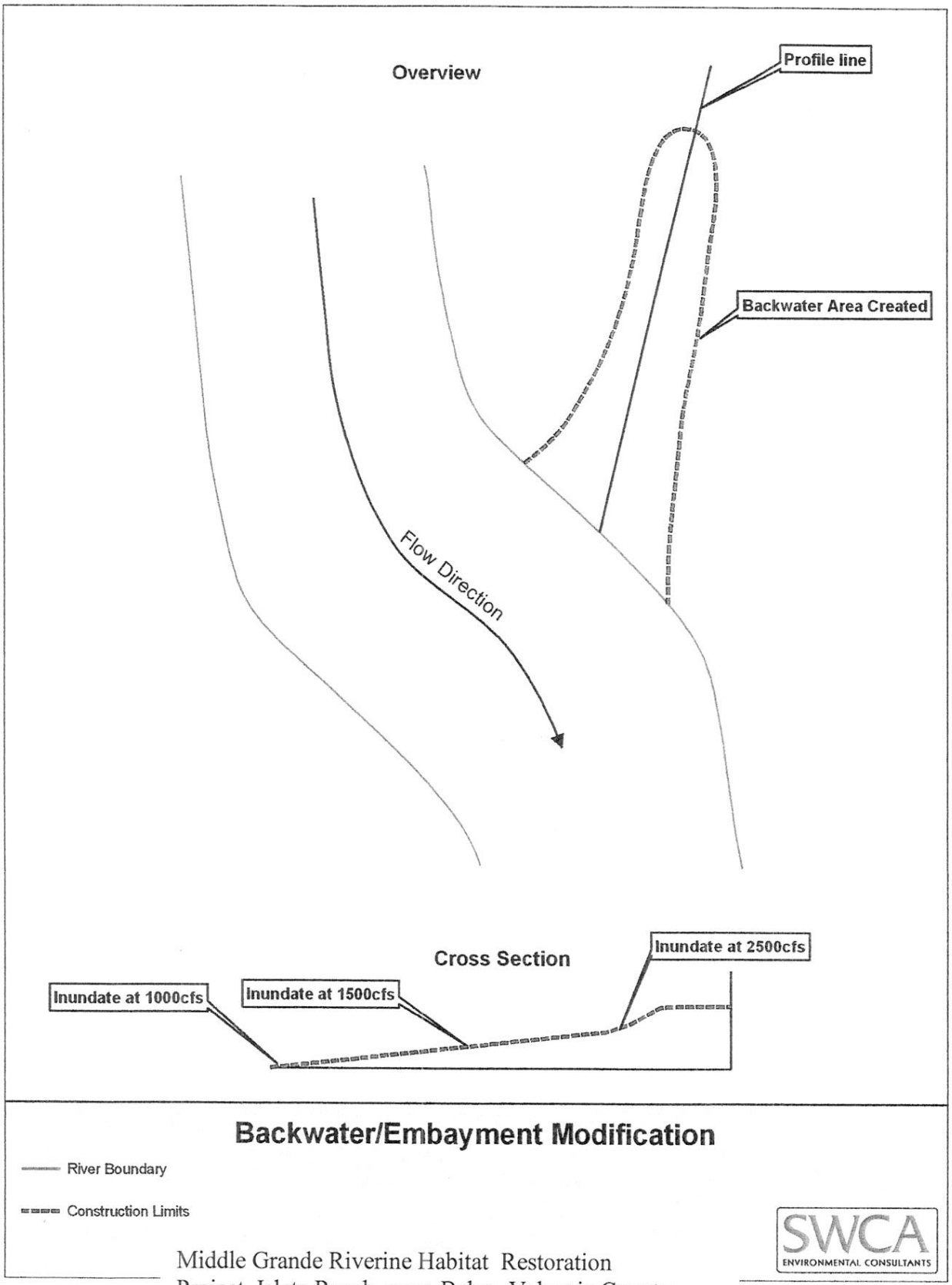
December 2008

Table 2. Jurisdictional Fill Areas

PERALTA SUBREACH						
Restoration Site	**Location**	**Restoration Treatment**	**Design Discharge (cfs)**	**Design Area (acres)**	**Sediment Disposal Area (acres)**	**Cut Vol (cubic yards) 5-ft grid**
Per-04		Backwater / Embayment	1500, 2500	1.06	0.27	2140
Per-06	Peralta B2	Backwater / Embayment	2500	0.50	0.13	856
Per-07	Peralta B3	Backwater / Embayment	1500, 2500	3.4	0.85	5038.4
Per-08	Peralta I5	Backwater / Embayment	1500	1.40	0.35	2285
Per-10	Peralta I7	Backwater / Embayment	1500	0.89	0.22	3086.8
Per-12	Peralta B4	Backwater / Embayment	1500	1.00	0.25	2826
Per-13	Peralta I9	Backwater / Embayment	1500	1.5	0.38	7630.3
Per-16	Peralta I10	Backwater / Embayment	1500	3.2	0.80	10,294.4
Per-17	Peralta B5	Backwater / Embayment	1500	1.00	0.25	1567.9
		Backwater / Embayment Total		**13.9**	**3.5**	**35,724.8**
Per-01	Peralta I2	Bankline Benches	2500, 3500	0.46	0.12	798
Per-03		Bankline Benches	1500, 2500	0.75	0.19	1573.8
Per-09		Bankline Benches	2500, 3500	0.7	0.18	608.2
Per-11		Bankline Benches	1500, 2500	0.36	0.09	737.9
Per-18		Bankline Benches	1500, 2500	0.7	0.18	1523.4
Per-19	Peralta I9	Bankline Benches	1500, 2500	6.14	1.54	29,064.9
		Bankline Benches Total		**9.11**	**2.28**	**34306.20**
Per-14	Peralta I9	Ephemeral Channels	1500	1.1	0.28	3016.9
		Ephemeral Channels Total		**1.10**	**0.28**	**3017**
Per-02	Peralta I2	Island Modification	2500	0.26	0.07	114.3
Per-05	Peralta B2	Island Modification	2500	0.7	0.18	843.3
Per-15	Peralta B 5	Island Modification	1500	2.8	0.70	8792.8
		Island Modification Total		**3.8**	**0.9**	**9750.4**
		Total Peralta Subreach Jurisdictional Waters		**27.9**	**7.0**	**82,798.3**

LP1DR SUBREACH						
Restoration Site	**Location**	**Restoration Treatment**	**Design Discharge (cfs)**	**Design Area (acres)**	**Sediment Disposal Area (acres)**	**Cut Vol (cubic yards) 5-ft grid**
LP1-06, 07 and 08	LP1 I7, LP1 B5	Backwater / Embayment	1500, 2000, 2500	5.9	1.48	12,185.6
LP1-04	LP1 I7	Backwater / Embayment	2500, 1500	3.1	0.78	6370.5
		Backwater / Embayment Total		**9.0**	**2.3**	**18,556.1**
LP1-01		Bankline Benches	2500, 3000	1.7	0.43	3067.7
LP1-03	LP1 B2	Bankline Benches	2500	1.8	0.45	3732.7
LP1-09	LP1 B5	Bankline Benches	2000	0.8	0.20	2207.7
LP1-10		Bankline Benches	3500	0.5	0.13	345.1
		Bankline Benches Total		**4.8**	**1.2**	**9353.2**
LP1-02	LP1 B2	Ephemeral Channels	2500 slope to 1500	0.2	0.05	218.6
LP1-05	LP1 I7	Ephemeral Channels	2500, 1500	1.00	0.25	1592
		Ephemeral Channels Total		**1.2**	**0.3**	**1810.6**
		Total LP1DR Subreach Jurisdictional Waters		**15.0**	**3.8**	**29,719.9**

BOSQUE INUNDATION						
Restoration Site	**Location**	**Restoration Treatment**	**Design Discharge (cfs)**	**Design Area (acres)**	**Sediment Disposal Area (acres)**	**Cut Vol (cubic yards) 5-ft grid**
Willie Chavez	LP1DR Subreach	Inundation Channel	3500-3000	2.07	3.01	2428.1
Willie Chavez	LP1DR Subreach	Backwater	3000-2500	6.78	23.30	18,795.3
		Total Jurisdictional Wetlands		**8.9**	**26.3**	**21,223.4**



Backwater/Embayment Modification

River Boundary

Construction Limits

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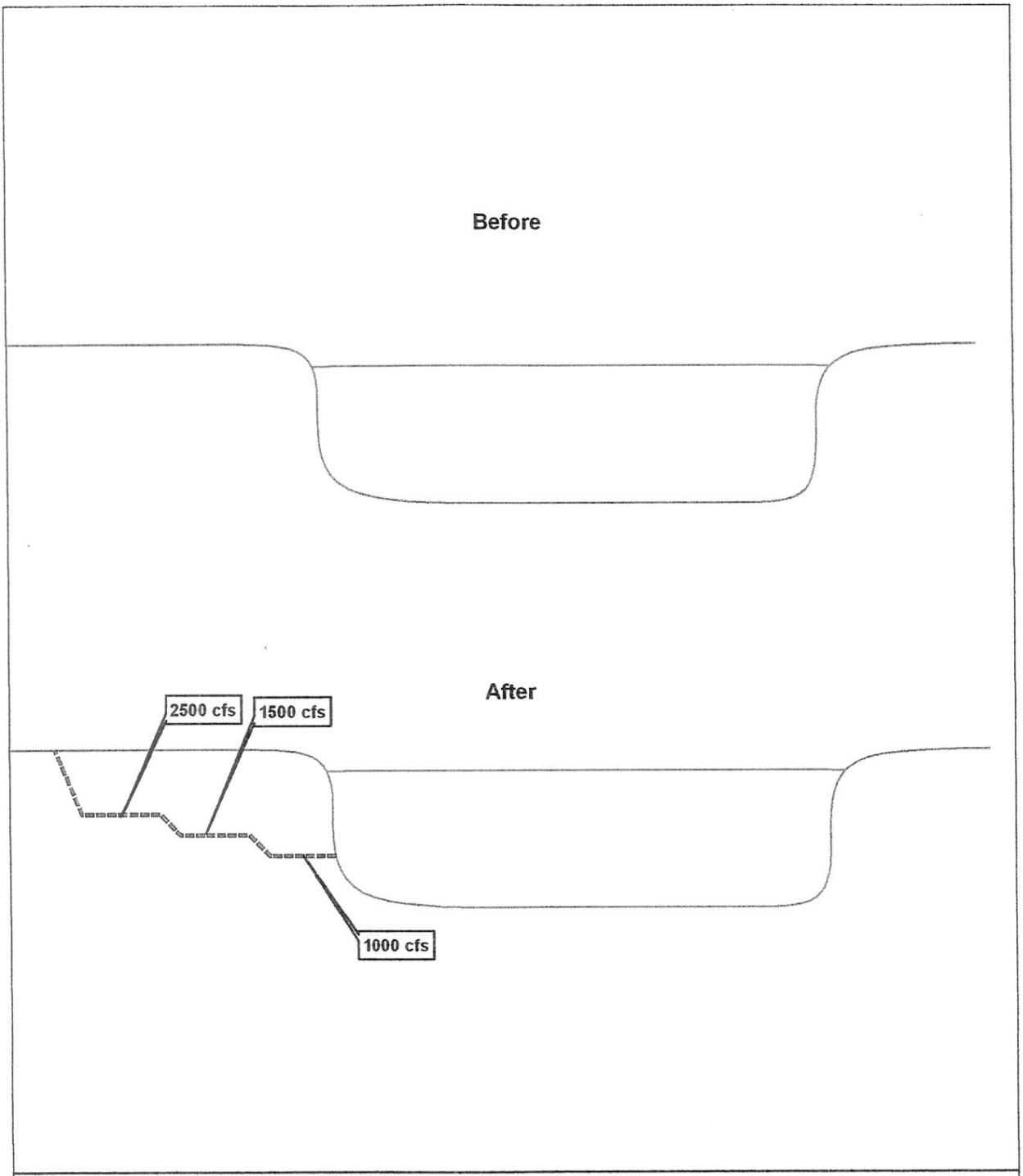
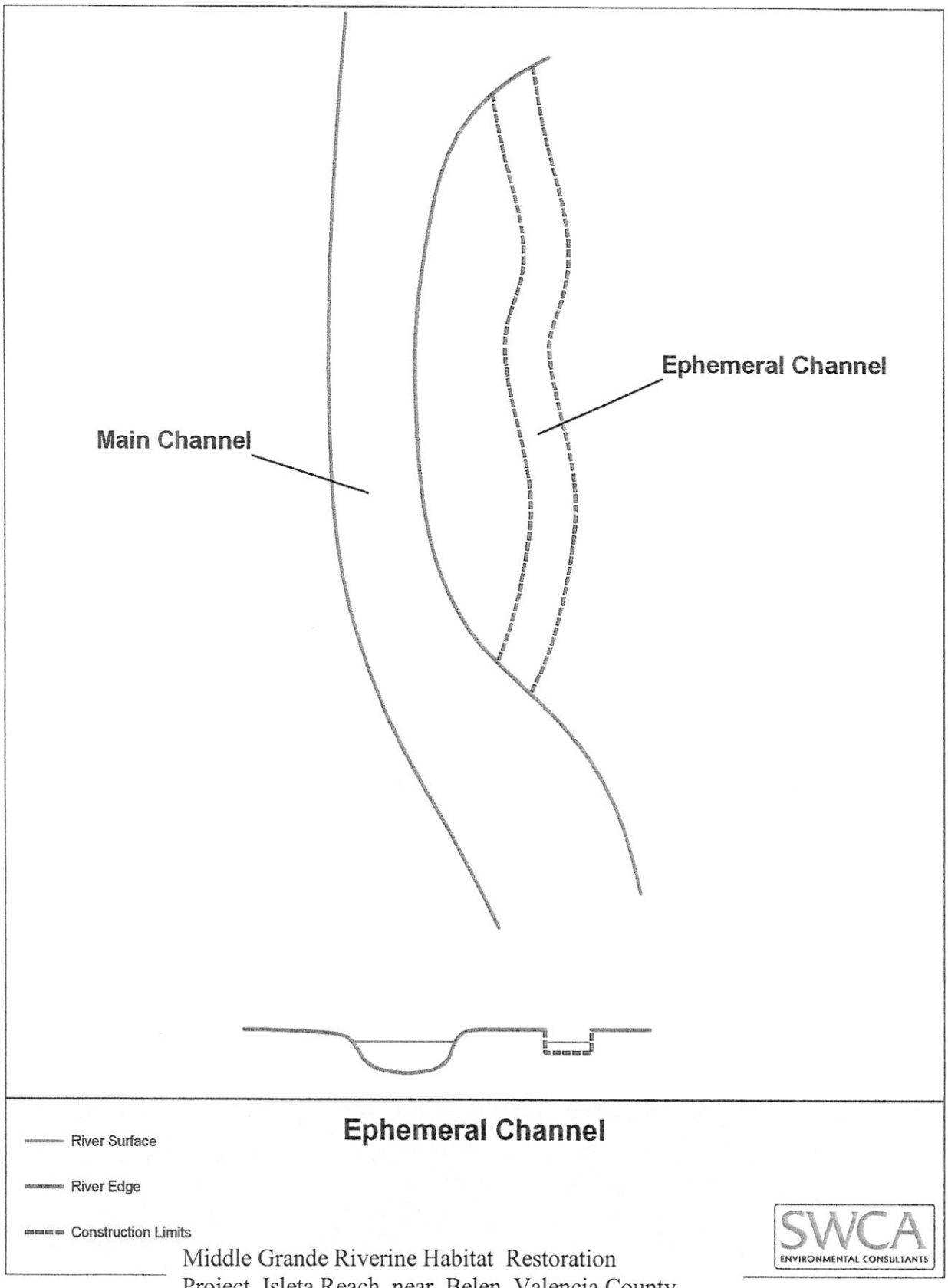
Middle Grande Riverine Habitat Restoration Project, Isleta Reach, near Belen, Valencia County, New Mexico
Application No. SPA-2008-00263-ABQ
Application by New Mexico Interstate Stream Commission
Sheet 5 of 9

December 2008

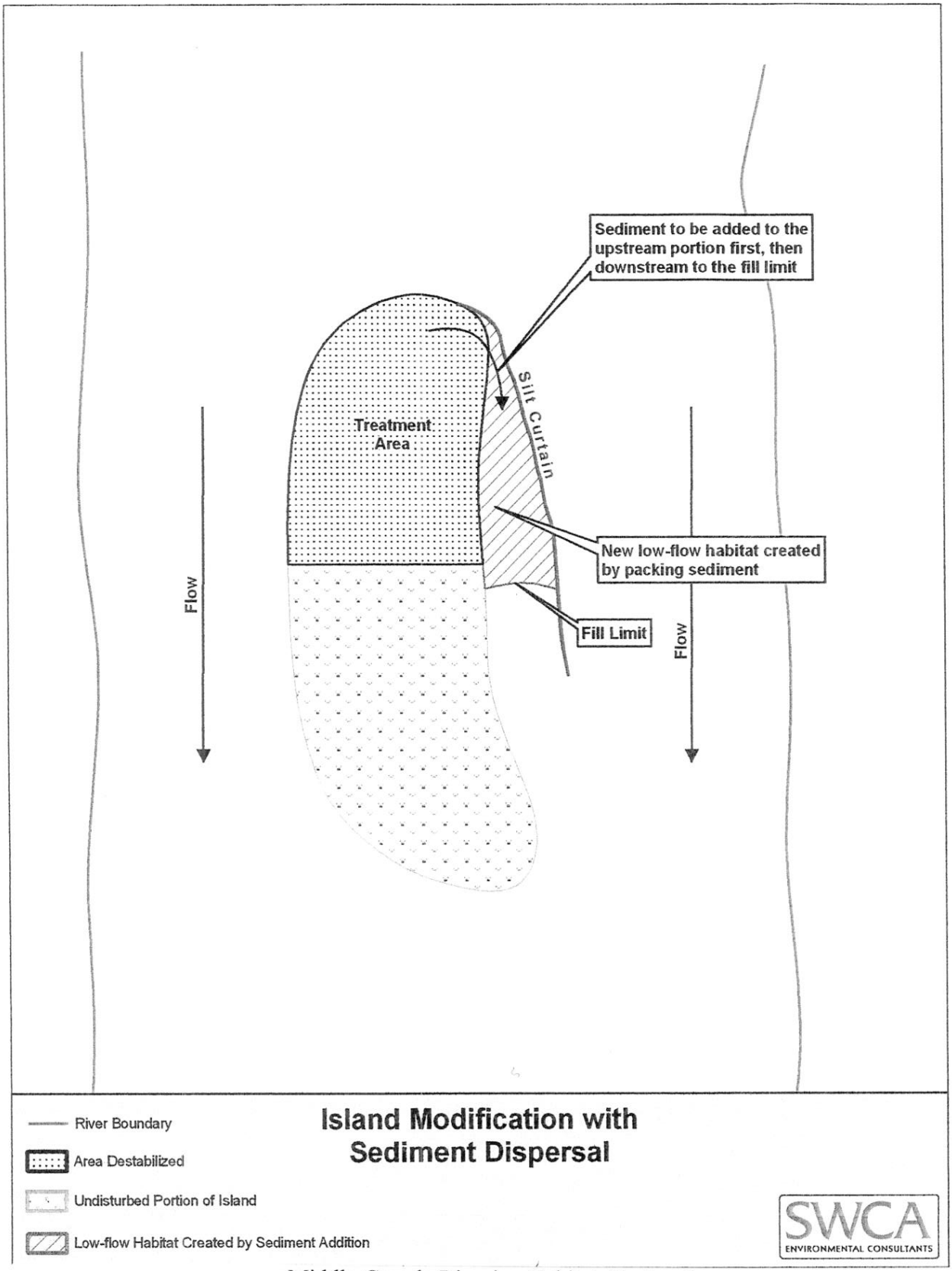


Bankline Bench Modification

Middle Grande Riverine Habitat Restoration Project, Isleta Reach, near Belen, Valencia County, New Mexico
Application No. SPA-2008-00263-ABQ
Application by New Mexico Interstate Stream Commission
Sheet 6 of 9 December 2008



Middle Grande Riverine Habitat Restoration Project, Isleta Reach, near Belen, Valencia County, New Mexico
Application No. SPA-2008-00263-ABQ
Application by New Mexico Interstate Stream Commission
Sheet 7 of 9 December 2008



Middle Grande Riverine Habitat Restoration
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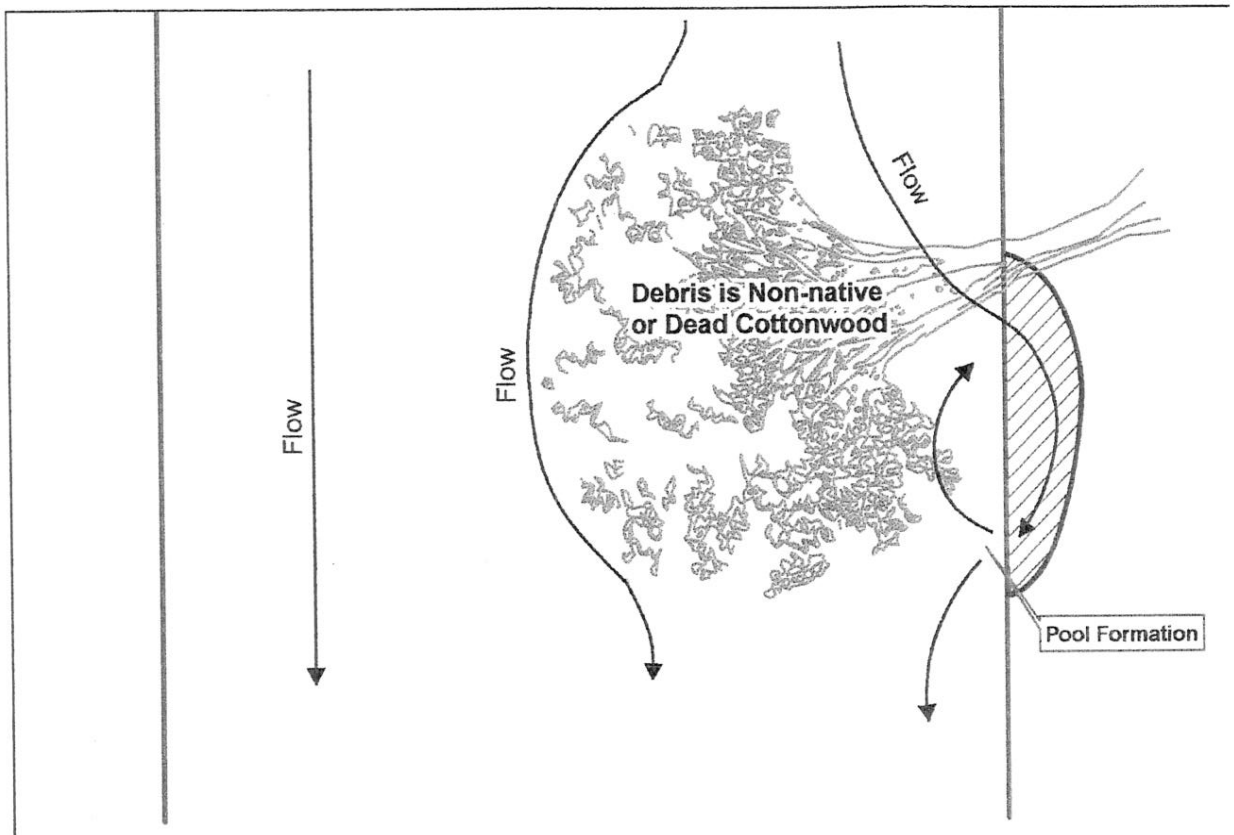
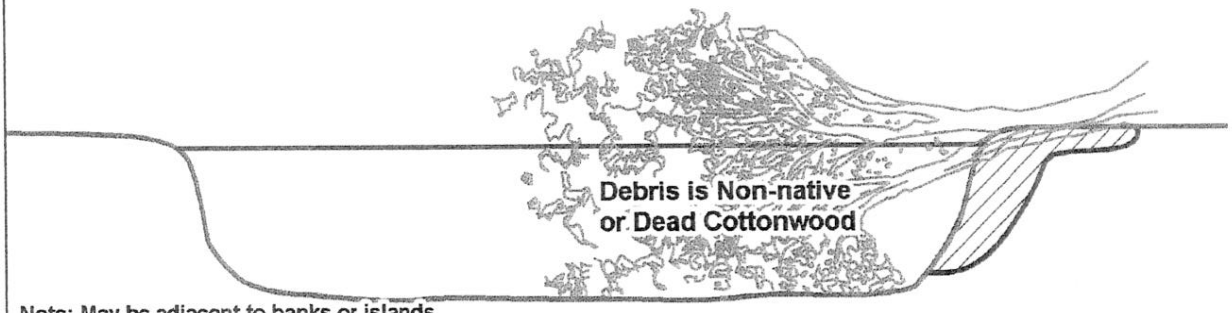
Application No. SPA-2008-00263-ABQ
Application by New Mexico Interstate Stream Commission
Sheet 8 of 9

December 2008



Bank Cross Section



Note: May be adjacent to banks or islands

Bank Large Woody Debris

River Boundary

Natural Excavation Area

N

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Application No. SPA-2008-00263-ABQ
Application by New Mexico Interstate Stream Commission
Sheet 9 of 9

December 2008